



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/687,861	10/17/2003	Anthony J. Griggs	W0550.70000US00	9578
64748	7590	02/21/2008		
HEXAGON METROLOGY c/o WOLF, GREENFIELD & SACKS, P.C. 600 ATLANTIC AVENUE BOSTON, MA 02210-2206			EXAMINER BAHTA, KIDEST	
			ART UNIT 2123	PAPER NUMBER
			MAIL DATE 02/21/2008	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

***Reply Brief Filed***

(1) The reply brief filed January 8, 2007, have been entered and considered. The application has been forwarded to the Board of Patent Appeals and Interferences for decision on the appeal.

**(2) Response to Argument**

Regarding independent claims 1, 31, 86, and 92 and dependent claims 3-6, 8-13, 15, 16, 18-20, 23-26, 33-36, 38-45, 47, 48, 50-53 and 87-91, Appellants argue, on pages 9 and 10 of the brief, Matsumiya does not generate a machine tool program that includes instructions to control a machine tool to perform coordinate measurements or generation a machine tool program from a dimensional metrology program. However, Examiner disagrees since Matsumiya discloses in column 8, lines 12-44, i.e., the necessary measurement program 50 based on the required machining quality information input from the NC program analyzing division 41 and also based on the probe information 47 and the other information 49 as shown in FIG. 2, if necessary. In this case, referencing **commands** for comparing the required tolerances such as tolerances of holes, **dimensional tolerances**, or the like with the measured values are automatically determined. Necessary information other than theses tolerance information are as follows. 1. Information particular to measurement program (a) Program name (b) Program file name (c) File name of output result (d) Device for outputting result (e) Format for outputting result (f) Others (process control information, or the like) 2. Information particular to measuring

machine (a) Setting of datum surface (b) Unit (mm/inch) (c) Travelling and measuring speed (d) Parameters of measuring operation (e) Probe (measurement value) information (f) Reference information (g) others (a master ball for calibrating a probe, or the like) 3. **Information particular to setting of initial coordinate**

**systems** (a) Switching of automatic measurement and manual measurement (b)

***Calling of coordinate systems.***

Regarding dependent claims 2 and 32 Appellants argue, on page 11 of the brief, Matsumiya does not disclose executing a machine tool program to produce coordinate measurement data. However, Examiner disagrees since Matsumiya discloses a measuring machine 31 ***executes coordinate measurement*** of the workpiece 30 ***according to the measurement program*** of a measurement control apparatus 32. The measured results are feed back to the NC program execution means 27 of the NC apparatus 25 in the next process via a measurement result analyzing means 33 (column 4, lines 58-65; Fig. 2).

Regarding dependent claims 7 and 37, Appellants argue, on page 11 of the brief, Matsumiya does not disclose a machine tool program that includes instructions to control a machine tool to perform coordinate measurement. However, Examiner disagrees since Matsumiya discloses in par. Col. 8, lines 12-44, i.e., the necessary measurement program 50 based on the required machining quality information input from the NC program analyzing division 41 and also based on the probe information 47 and the other information 49 as shown in FIG. 2, if necessary. In this case, referencing ***commands*** for comparing the required tolerances such as tolerances of

Art Unit: 2123

holes, **dimensional tolerances**, or the like with the measured values are automatically determined. Necessary information other than these tolerance information are as follows. 1. Information particular to measurement program (a) Program name (b) Program file name (c) File name of output result (d) Device for outputting result (e) Format for outputting result (f) Others (process control information, or the like) 2. Information particular to measuring machine (a) Setting of datum surface (b) Unit (mm/inch) (c) Travelling and measuring speed (d) Parameters of measuring operation (e) Probe (measurement value) information (f) Reference information (g) others (a master ball for calibrating a probe, or the like) 3. **Information particular to setting of initial coordinate systems** (a) Switching of automatic measurement and manual measurement (b) **Calling of coordinate systems**.

Regarding dependent claims 14 and 46, Appellants argue, on page 11 of the brief, Matsumiya does not disclose an application integrated within a control panel of the machine tool controller. However, Examiner disagrees since Matsumiya discloses in col.4, lines 35-50, i.e., a servo control signal to the servo control means 28. Thus, the machine tool 26 can be controlled in a feed drive control by the drive signal output from the servo control means.

Regarding dependent claim 17, Appellants argue, on page 12 of the brief, Matsumiya does not disclose the machine tool program comprises combining a machine definition with a dimensional metrology path definition. However, Examiner disagrees since Matsumiya discloses in Fig. 3, and Fig. 7-9; i.e., tool list definition

Art Unit: 2123

and three dimensional coordinate measuring path definition and the measurement control apparatus 32 sends a command indicating measurement paths defined by the predetermined measurement program to the probe of the measuring machine 31.

Regarding dependent claim 21, Appellants argue, on page 12 of the brief, Matsumiya does not disclose generation a machine tool program from a dimensional metrology comprises translating the dimensional metrology into the machine tool program. However, Examiner disagrees since Matsumiya discloses in col.6, lines 38-43, i.e., The NC program analyzing division 41 supplies coordinate data existing in the NC program to a coordinate system conversion division 43 to convert the coordinate systems prepared for NC machining to the three-dimensional coordinate systems for measurement. A list of the extracted working elements and a list of the converted coordinate systems are supplied to a geometrical element producing division 44 of the geometrical model producing division 35, and the working element designated by the NC program 40 is converted to a geometrical element in an ordinary three-dimensional coordinate system, and then output.

Regarding dependent claims 22 and 49, Appellants argue, on page 13 of the brief, Matsumiya does not disclose removing a dimensional metrology program commands from the dimensional metrology program. However, Examiner disagrees since Matsumiya discloses in col. 5, lines 24-43, i.e., the machining shape information extracting division 34 extracts the quality information from the actual

machining NC program and directly outputs the quality information to the measurement program producing division 36.

Regarding dependent claims 27 and 54, Appellants argue, on page 13 of the brief, Matsumiya does not disclose generation of the machine tool program comprises providing indicators within the within the machine tool associated with a workpiece feature. However, Examiner disagrees since Matsumiya discloses in column 8, lines 12-44, i.e., the necessary measurement program 50 based on the required machining quality information input from the NC program analyzing division 41 and also based on the probe information 47 and the other information 49 as shown in FIG. 2, if necessary. In this case, referencing **commands** for comparing the required tolerances such as tolerances of holes, **dimensional tolerances**, or the like with the measured values are automatically determined. Necessary information other than theses tolerance information are as follows. 1. Information particular to measurement program (a) Program name (b) Program file name (c) File name of output result (d) Device for outputting result (e) Format for outputting result (f) Others (process control information, or the like) 2. Information particular to measuring machine (a) Setting of datum surface (b) Unit (mm/inch) (c) Travelling and measuring speed (d) Parameters of measuring operation (e) Probe (measurement value) information (f) Reference information (g) others (a master ball for calibrating a probe, or the like) 3. **Information particular to setting of initial coordinate systems** (a) Switching of automatic measurement and manual measurement (b) **Calling of coordinate systems.**

Art Unit: 2123

Regarding dependent claims 91, Appellants argue, on page 13 of the brief, Matsumiya does not disclose the quantity of coordinate dimensional associated with a workpiece feature. However, Examiner disagrees since Matsumiya discloses in col. 8, line 54-col. 9, line 4, i.e., the relationship between the NC machining program and the measurement program by feeding-back the actual machining shapes to the work control by the machine tool while measuring the machining shapes during actual machining operation by the measurement program.

Regarding independent claims 28 and 93, and dependent claims 29-30, Appellants argue, on page 14 of the brief, Matsumiya does not disclose generate a machine tool program that includes instructions to control a machine tool to perform coordinate measurements or generation a machine tool program from a dimensional metrology program. However, Examiner disagrees since Matsumiya discloses in column 8, lines 12-44, i.e., the necessary measurement program 50 based on the required machining quality information input from the NC program analyzing division 41 and also based on the probe information 47 and the other information 49 as shown in FIG. 2, if necessary. In this case, referencing **commands** for comparing the required tolerances such as tolerances of holes, **dimensional tolerances**, or the like with the measured values are automatically determined. Necessary information other than theses tolerance information are as follows. 1. Information particular to measurement program (a) Program name (b) Program file name (c) File name of output result (d) Device for outputting result (e) Format for outputting result (f) Others (process control information, or the like) 2. Information particular to measuring machine (a) Setting of datum surface

Art Unit: 2123

(b) Unit (mm/inch) (c) Travelling and measuring speed (d) Parameters of measuring operation (e) Probe (measurement value) information (f) Reference information (g) others (a master ball for calibrating a probe, or the like) 3. **Information particular to setting of initial coordinate systems** (a) Switching of automatic measurement and manual measurement (b) ***Calling of coordinate systems.***

Regarding independent claim 55, and dependent claims 56, Appellants argue, on page 14 of the brief, Matsumiya does not disclose generate a machine tool program that includes instructions to control a machine tool to perform coordinate measurements or generation a machine tool program from a dimensional metrology program. However, Examiner disagrees since Matsumiya discloses in column 8, lines 12-44, i.e., the necessary measurement program 50 based on the required machining quality information input from the NC program analyzing division 41 and also based on the probe information 47 and the other information 49 as shown in FIG. 2, if necessary. In this case, referencing ***commands*** for comparing the required tolerances such as tolerances of holes, ***dimensional tolerances***, or the like with the measured values are automatically determined. Necessary information other than theses tolerance information are as follows. 1. Information particular to measurement program (a) Program name (b) Program file name (c) File name of output result (d) Device for outputting result (e) Format for outputting result (f) Others (process control information, or the like) 2. Information particular to measuring machine (a) Setting of datum surface (b) Unit (mm/inch) (c) Travelling and measuring speed (d) Parameters of measuring operation (e) Probe (measurement value) information (f) Reference information (g)



Art Unit: 2123

others (a master ball for calibrating a probe, or the like) 3. **Information particular to setting of initial coordinate systems** (a) Switching of automatic measurement and manual measurement (b) ***Calling of coordinate systems.***

Regarding independent claims 57, 76 and 77, and dependent claims 59-61, 63-64, 66-68, 71-75, Appellants argue, on page 14 of the brief, Matsumiya does not disclose generate a machine tool program that includes instructions to control a machine tool to perform coordinate measurements or generation a machine tool program from a dimensional metrology program. However, Examiner disagrees since Matsumiya discloses in column 8, lines 12-44, i.e., the necessary measurement program 50 based on the required machining quality information input from the NC program analyzing division 41 and also based on the probe information 47 and the other information 49 as shown in FIG. 2, if necessary. In this case, referencing ***commands*** for comparing the required tolerances such as tolerances of holes, ***dimensional tolerances***, or the like with the measured values are automatically determined. Necessary information other than theses tolerance information are as follows. 1. Information particular to measurement program (a) Program name (b) Program file name (c) File name of output result (d) Device for outputting result (e) Format for outputting result (f) Others (process control information, or the like) 2. Information particular to measuring machine (a) Setting of datum surface (b) Unit (mm/inch) (c) Travelling and measuring speed (d) Parameters of measuring operation (e) Probe (measurement value) information (f) Reference information (g) others (a master ball for calibrating a probe, or the like) 3. **Information particular to setting of initial**

Art Unit: 2123

**coordinate systems** (a) Switching of automatic measurement and manual measurement (b) ***Calling of coordinate systems.***

Regarding dependent claim 58, Appellants argue, on page 15 of the brief, Matsumiya does not disclose generate a machine tool program that includes instructions to control a machine tool to perform coordinate measurements. However, Examiner disagrees since Matsumiya discloses in column 8, lines 12-44, i.e., the necessary measurement program 50 based on the required machining quality information input from the NC program analyzing division 41 and also based on the probe information 47 and the other information 49 as shown in FIG. 2, if necessary. In this case, referencing ***commands*** for comparing the required tolerances such as tolerances of holes, ***dimensional tolerances***, or the like with the measured values are automatically determined. Necessary information other than theses tolerance information are as follows. 1. Information particular to measurement program (a) Program name (b) Program file name (c) File name of output result (d) Device for outputting result (e) Format for outputting result (f) Others (process control information, or the like) 2. Information particular to measuring machine (a) Setting of datum surface (b) Unit (mm/inch) (c) Travelling and measuring speed (d) Parameters of measuring operation (e) Probe (measurement value) information (f) Reference information (g) others (a master ball for calibrating a probe, or the like) 3. **Information particular to setting of initial coordinate systems** (a) Switching of automatic measurement and manual measurement (b) ***Calling of coordinate systems.***

Art Unit: 2123

Regarding dependent claims 62, Appellants argue, on page 16 of the brief, Matsumiya does not disclose generate a machine tool program of any kind by an application integrated within a control panel of the machine tool controller. However, Examiner disagrees since Matsumiya discloses in col.4, lines 35-50, i.e., a servo control signal to the servo control means 28. Thus, the machine tool 26 can be controlled in a feed drive control by the drive signal output from the servo control means.

Regarding dependent claim 65, Appellants argue, on page 16 of the brief, Matsumiya does not disclose the machine tool program comprises combining a machine definition with a dimensional metrology path definition. However, Examiner disagrees since Matsumiya discloses in Fig. 3, and Fig. 7-9; i.e., tool list definition and three dimensional coordinate measuring path definition and the measurement control apparatus 32 sends a command indicating measurement paths defined by the predetermined measurement program to the probe of the measuring machine 31.

Regarding dependent claim 69, Appellants argue, on page 16 of the brief, Matsumiya does not disclose generation a machine tool program from a dimensional metrology comprises translating the dimensional metrology into the machine tool program. However, Examiner disagrees since Matsumiya discloses in col.6, lines 38-43, i.e., The NC program analyzing division 41 supplies coordinate data existing in the NC program to a coordinate system conversion division 43 to convert the coordinate systems prepared for NC machining to the three-dimensional coordinate

systems for measurement. A list of the extracted working elements and a list of the converted coordinate systems are supplied to a geometrical element producing division 44 of the geometrical model producing division 35, and the working element designated by the NC program 40 is converted to a geometrical element in an ordinary three-dimensional coordinate system, and then output.

Regarding dependent claims 70, Appellants argue, on page 17 of the brief, Matsumiya does not disclose generation of the machine tool program comprises removing a dimensional metrology program commands from the dimensional metrology program. However, Examiner disagrees since Matsumiya discloses in col. 5, lines 24-43, i.e., the machining shape information extracting division 34 extracts the quality information from the actual machining NC program and directly outputs the quality information to the measurement program producing division 36.

Regarding independent claim 78, Appellants argue, on page 17 of the brief, Matsumiya does not generate a machine tool program that includes instructions to control a machine tool to perform coordinate measurements or generation a machine tool program from a dimensional metrology program. However, Examiner disagrees since Matsumiya discloses in column 8, lines 12-44, i.e., the necessary measurement program 50 based on the required machining quality information input from the NC program analyzing division 41 and also based on the probe information 47 and the other information 49 as shown in FIG. 2, if necessary. In this case, referencing **commands** for comparing the required tolerances such as tolerances of holes, **dimensional tolerances**, or the like with the measured values are

Art Unit: 2123

automatically determined. Necessary information other than these tolerance information are as follows. 1. Information particular to measurement program (a) Program name (b) Program file name (c) File name of output result (d) Device for outputting result (e) Format for outputting result (f) Others (process control information, or the like) 2. Information particular to measuring machine (a) Setting of datum surface (b) Unit (mm/inch) (c) Travelling and measuring speed (d) Parameters of measuring operation (e) Probe (measurement value) information (f) Reference information (g) others (a master ball for calibrating a probe, or the like) 3. **Information particular to setting of initial coordinate systems** (a) Switching of automatic measurement and manual measurement (b) ***Calling of coordinate systems.***

Regarding independent claim 79 and dependent claims 80-83, Appellants argue, on pages 9 and 10 of the brief, Matsumiya does not generate a machine tool program that executable on a machine tool controller to perform coordinate measurements without interaction with program generator. However, Examiner disagrees since Matsumiya discloses in column 8, lines 12-44, i.e., the necessary measurement program 50 based on the required machining quality information input from the NC program analyzing division 41 and also based on the probe information 47 and the other information 49 as shown in FIG. 2, if necessary. In this case, referencing ***commands*** for comparing the required tolerances such as tolerances of holes, ***dimensional tolerances***, or the like with the measured values are automatically determined. Necessary information other than these tolerance information are as

follows. 1. Information particular to measurement program (a) Program name (b) Program file name (c) File name of output result (d) Device for outputting result (e) Format for outputting result (f) Others (process control information, or the like) 2. Information particular to measuring machine (a) Setting of datum surface (b) Unit (mm/inch) (c) Travelling and measuring speed (d) Parameters of measuring operation (e) Probe (measurement value) information (f) Reference information (g) others (a master ball for calibrating a probe, or the like) 3. **Information particular to setting of initial coordinate systems** (a) Switching of automatic measurement and manual measurement (b) ***Calling of coordinate systems.***

Regarding independent claim 84 and dependent claims 85, Appellants argue, on page 17 of the brief, Matsumiya does not generate a machine tool program that includes instructions to control a machine tool to perform coordinate measurements or generation a machine tool program from a dimensional metrology program. However, Examiner disagrees since Matsumiya discloses in column 8, lines 12-44, i.e., the necessary measurement program 50 based on the required machining quality information input from the NC program analyzing division 41 and also based on the probe information 47 and the other information 49 as shown in FIG. 2, if necessary. In this case, referencing **commands** for comparing the required tolerances such as tolerances of holes, ***dimensional tolerances***, or the like with the measured values are automatically determined. Necessary information other than these tolerance information are as follows. 1. Information particular to measurement program (a) Program name (b) Program file name (c) File name of

Art Unit: 2123

output result (d) Device for outputting result (e) Format for outputting result (f) Others (process control information, or the like) 2. Information particular to measuring machine (a) Setting of datum surface (b) Unit (mm/inch) (c) Travelling and measuring speed (d) Parameters of measuring operation (e) Probe (measurement value) information (f) Reference information (g) others (a master ball for calibrating a probe, or the like) 3. **Information particular to setting of initial coordinate systems** (a) Switching of automatic measurement and manual measurement (b) ***Calling of coordinate systems.***

### ***Conclusion***

2. Any inquiry concerning this communication or earlier communications from the examiner should be directed Kidest Bahta whose telephone number is 571-272-3737. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Rodriguez can be reached on 571-272-3753. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application information Retrieval IPAIRI system. Status information for published applications may be obtained from either Private PMR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAG system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Application/Control Number: 10/687,861  
Art Unit: 2123

Page 16

Kidest Bahta

A handwritten signature in black ink, consisting of a large, stylized 'K' followed by a series of connected loops and a horizontal line at the end.

**KIDEST BAHTA  
PRIMARY EXAMINER  
TECHNOLOGY CENTER 2100**